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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/578,752	12/27/2006	Alton Hugh Phillips	NIKOP064/PA0647	1519

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Weaver Austin Villeneuve & Sampson LLP
P.O. BOX 70250
OAKLAND, CA 94612-0250

EXAMINER

WHITESSELL GORDON, STEVEN H

ART UNIT	PAPER NUMBER
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2882

NOTIFICATION DATE	DELIVERY MODE
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08/04/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

USPTO@wavsip.com

Office Action Summary	Application No. 10/578,752	Applicant(s) PHILLIPS ET AL.	
	Examiner Steven H. Whitesell-Gordon	Art Unit 2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) 31-39 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19-30 is/are allowed.
- 6) ☒ Claim(s) 1-4, 12-16 and 40-44 is/are rejected.
- 7) ☒ Claim(s) 5-11, 17 and 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>5/4/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election of group I, claims 1-30 and 40-44, in the reply filed on 21 June 2010 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Objections

2. Claim 44 is objected to because of the following informalities: Claim 44 fails to identify upon which claim it is dependent, see line 2. For the purposes of examining, claim 44 is understood to be dependent on claim 40. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 1, 4 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Klebanoff et al. [US 6,253,464].**

For claim 1, Klebanoff teaches an extreme ultraviolet lithography system (see col. 4 line 57) comprising: a reticle (120, see Fig. 1) having a top and a bottom surface (top and bottom surfaces of 120); a plurality of chambers for storing or utilizing the

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reticle (chamber for exposure and location for storage, see col. 6 lines 25-47); and a top plate and a bottom plate (walls 110 that are proximate the top surface and bottom surface of the reticle 120) that are proximate to the top and bottom surface of the reticle, respectively, the top and bottom plate being maintained at a lower temperature than a temperature of the reticle, wherein the reticle is thermophoretically protected from contamination (see col. 3 lines 29-34 and col. 6 lines 2-9).

For claim 4, Klebanoff teaches a reticle handler (for performing handling operation, see col. 6 lines 32-33) suitable for transporting the reticle, the reticle handler supporting the top plate and the bottom plate in substantially coplanar relative positions (pellicle utilized in handling operation, see col. 6 lines 25-33), the reticle handler supporting the reticle in between the top plate and the bottom plate (see Fig. 1), wherein the reticle handler transports the reticle while being in between the top plate and the bottom plate so that the reticle is thermophoretically protected from contaminants during transit (see col. 3 lines 29-34 and col. 6 lines 2-9).

For claim 12, Klebanoff teaches one of the chambers is a storage chamber (for performing storing operation, see col. 6 lines 32-33) for storing the reticle, the storage chamber including the top plate and the bottom plate, which are positioned proximate to the top and the bottom surfaces of the reticle, respectively (pellicle utilized in storing operation, see col. 6 lines 25-33).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Klebanoff in view of del Puerto et al. [US 6,826,451].

For claim 13, Klebanoff teaches and enclosure surrounding a reticle having top and bottom plates and side walls (see Fig. 1) for storage of a reticle (see col. 6 lines 25-33). Klebanoff fails to disclose the enclosure including a gate valve to enclose the reticle within the storage chamber, the gate valve being suitable for opening and closing so that the reticle can be inserted and removed from the storage chamber.

del Puerto teaches a gate valve (126, see Fig 3A) to enclose the reticle within the storage chamber, the gate valve being suitable for opening and closing so that the reticle can be inserted and removed from the storage chamber (by arm 112).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the gate valve of del Puerto for removing the reticle of Klebanoff from a storage chamber, because this would allow for removal of the reticle from storage so that it may be transferred to an exposure chamber for exposure and reducing the likelihood of exposing the reticle to more contaminants when closed.

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Klebanoff in view of del Puerto et al. [US 6,991,416].

For claim 14, Klebanoff teaches reticle handler (for performing handling operation, see col. 6 lines 32-33) for transporting a reticle (120) comprising: robotic handling (see col. 3 line 11) that supports a top plate and a bottom plate (walls 110 that

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are proximate the top surface and bottom surface of the reticle 120, see Fig. 1) in substantially coplanar relative positions such that the reticle can be supported between the top plate and the bottom plate (pellicle utilized in handling operation, see col. 6 lines 25-33), the top and bottom plate being maintained at a lower temperature than a temperature of the reticle, wherein the reticle handler transports the reticle while being in between the top plate and the bottom plate so that the reticle is thermophoretically protected from contaminants (see col. 3 lines 29-34 and col. 6 lines 2-9) during transit plate (pellicle utilized in handling operation, see col. 6 lines 25-33).

Klebanoff does not explicitly disclose the use of a support arm.

Del Puerto teaches the use of a support arm (717, see Fig. 7B-7C).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of the support arm of del Puerto in the robotic handling of Klebanoff, because this would allow for a large range of movement while transferring the reticle between a storage container and the exposure chamber.

8. Claims 2 and 3 and rejected under 35 U.S.C. 103(a) as being unpatentable over Klebanoff in view of Golda [US 7,159,719] and Claims 15 and 16 are similarly rejected under 35 U.S.C. 103(a) as being unpatentable over Klebanoff in view of del Puerto as applied to claim 14 above, and further in view of Golda.

For claims 2, 3, 15 and 16, Klebanoff does not explicitly disclose that the top plate and the bottom plate each have a surface area that is at least as large as a surface area of the reticle (because Klebanoff does not disclose that the apertures 130 and 135 are of a size that results in the surface area of the walls being greater above

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and below reticle 120) and the bottom plate further comprises: a plurality of support stems that support the reticle in between the top plate and the bottom plate.

Golda teaches the top plate and the bottom plate each have a surface area that is at least as large as a surface area of the reticle (top and bottom of 14 is maintained at a cooler temperature and encloses the reticle 16, see Fig. 1 and col. 2 lines 1-8) and the bottom plate further comprises: a plurality of support stems that support the reticle in between the top plate and the bottom plate (see supports shown in Fig. 1 for supporting reticle 1).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the stem and enclosure 14 having a greater surface area than reticle 16 as taught by Golda in the system of Klebanoff, because this could allow for reducing the introduction of possible contaminants to the enclosure system while maintaining contaminants away from the surface of the reticle.

9. Claims 40-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka [US 2002/0075469] in view of Klebanoff.

For claim 40, Tanaka teaches a lithography system comprising: an illumination source (ILU, see Fig. 1 and [0055]); an optical system (PL); a reticle stage (RST); a working stage (WST) arranged to retain a workpiece (W); an enclosure (partition walls 40 that forms wafer chamber 38, see [0075]) that surrounds at least a portion of the working stage, the enclosure having a sealing surface (door 86).

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Klebanoff teaches a reticle (120, see Fig. 1) having a top and a bottom surface (top and bottom surfaces of 120); and a top plate and a bottom plate (walls 110 that are proximate the top surface and bottom surface of the reticle 120) that are proximate to the top and bottom surface of the reticle, respectively, the top and bottom plate being maintained at a lower temperature than a temperature of the reticle, wherein the reticle is thermophoretically protected from contamination (see col. 3 lines 29-34 and col. 6 lines 2-9).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the system of Klebanoff in the lithography system of Tanaka, because the system of Klebanoff would reduce the amount of particulate attaching to the surface of the mask thereby reducing ineffective exposure by contaminated masks.

For claim 41, Tanaka teaches an object manufactured with the lithography system (see [0165]).

For claim 42, Tanaka teaches a wafer (W) on which an image (from Reticle R) has been formed by the lithography system.

For claim 43, Tanaka teaches a method for making an object using a lithography process, wherein the lithography process utilizes a lithography system (see [0165]).

For claim 43, Tanaka teaches a method for patterning a wafer using a lithography process, wherein the lithography process utilizes a lithography system (see [0165]).

Allowable Subject Matter

10. Claims 19-30 are allowed.
11. Claims 5-11, 17 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
12. The following is a statement of reasons for the indication of allowable subject matter:

For claims 5 and 17, Klebanoff fails to disclose that any portion of the walls forming pellicle 110 are movable, accordingly, Klebanoff fails to disclose the specifics of the top plate is removable from the reticle handler so that the top surface of the reticle can be exposed.

For claim 18, Klebanoff teaches the walls of pellicle 110 should be colder than the reticle 120. Klebanoff fails to provide the specifics of a cooling unit having a pocket suitable for receiving the top plate and the bottom plate, wherein the cooling unit cools and maintains the top and bottom plates at a relatively low temperature.

For claims 6 and 19, Klebanoff teaches that the pellicle may be utilized in the handling of the reticle, and del Puerto [US, 6,906,783] teaches a pod for handling a reticle, see Figs. 12 and 13. However, a combination of Klebanoff and del Puerto, without the use of impermissible hindsight reasoning, fails to teach the specifics of a pod for storing the reticle, the pod including a cover that can be joined with the bottom plate to enclose the reticle and the top plate within the cover and the bottom plate.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven H. Whitesell-Gordon whose telephone number is (571) 270-3942. The examiner can normally be reached on Monday to Thursday, 9:00 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S. H. W./
Examiner, Art Unit 2882

/Hung Henry Nguyen/
Primary Examiner of Art Unit 2882